C-521-M-4

cc: Peoria
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Keystone Steel & Wire

March 11, 1993

Illinois Environmental Protection Agency
Attn: Lawrence W. Estep, P.E.
Manager, Permit Section
Division of Land Pollution Control, #33
2200 Churchill Road
P. O. Box 19276
Springfield, IL 62794-9276

RE: KEYSTONE WASTE MINIMIZATION PROJECT
FEBRUARY, 1993 PROGRESS REPORT

Dear Sir:

The following is a recap of activities for the past month relative to our Waste Minimization Project:

I. GENERAL

A) There continues to be further formulating and testing of coating samples taking place. Most of this work is taking place with one vendor; however, recent samples form the two other prime candidates have shown improved characteristics. It is doubtful if any production trials will be done at this time on these other candidates, but down the road this may be done.

B) Approval has been given to proceed with conversion to alkaline cleaning and water based coating for all cleaning and coating lines. This conversion will be patterned after our work in the South Complex and will reuse much of the equipment currently used with the solvent based cleaning/coating. Parts are being ordered and engineering work and fabrication work is in process.

II. MAJOR STEPS 2 THROUGH 4

The differences in drawing practices between Wire Mill and Mid Mill was identified as being a problem, and changes have been enacted to alleviate this. The change incorporated was to use less concentration of lime in the rod cleaning process, which translates into reduced pick-up of the drawing lubricants during the drawing operation, and hence, an overall cleaner, brighter wire going into the alkaline cleaning operation. No problems were identified with the wire produced this way in regards to the nail cutting operation in the Wire Mill.

We have continued production all month long with the water based coating, and have been having reasonable success. Sales has been giving approval on a daily basis to continue with production. Problems with consistency have improved considerably, with very few recoats required. We would still like to see some improvements in the appearance and water insolubility of the green coating. The water insolubility does improve considerably with age, but it is not as good as we would like. The pull out tests to date seem to show approximately the same values as experienced with the solvent coated nails, although, again, some tests show improvements with age in this characteristic, also.

Starting on March 8, we ran a production run utilizing the red coating. These tests were quite successful. The appearance was excellent as was the water insolubility characteristic. The adhesion was not quite as good as the green coating, and, therefore, we seem to see slightly more dusting in the packaging process; however, the appearance was quite good after the packaging process. Pull out test results with the red coated nails have not come back yet. Due to the successful results of these tests, we have gone back to the green coating to accommodate scheduling concerns.

We are planning to run a production test with the reformulated cleaner starting on March 15.

As we get more feedback with the continued usage of the water based coatings, we are finding that there is going to be more maintenance involved in keeping our equipment clean, i.e., in preventing excessive buildup of the dried coating. We expected this would be the case, and essentially are addressing this as we identify it. For example, it has been identified that just pumping alkali cleaner onto the spiral and in the cabinet on a weekly basis is not adequate to prevent eventually excessive buildup. We are currently discussing a weekly or bi-weekly steam cleaning with alkali scenario, and also whether this can be done without completely removing the spiral. At this point in time, we do not know the answers, but will be taking a "try and see what happens approach", until we can better identify what the overall maintenance schedule will sort out to be.

Overall, we seem to have made considerable progress this past month; enough, in fact, to have gotten the go-ahead to change the rest of the lines to the water based systems. The major effort has now shifted from experimenting with the trial equipment to installing like equipment at the other locations on an expedited schedule. One down side to this schedule is that further changes/improvements that might have been identified with further testing, will not be able to be incorporated in the final design of the other lines.

Sincerely,

Bob Miller

ROBERT N. MILLER
MANAGER OF ENGINEERING

RNM:bmk
3/11/93

C-521-M-6

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Keystone Steel & Wire

February 11, 1993

Illinois Environmental Protection Agency
Attn: Lawrence W. Estep, P.E.
Manager, Permit Section
Division of Land Pollution Control, #33
2200 Churchill Road
P. O. Box 19276
Springfield, IL 62794-9276

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PERMIT SECTION

RE: KEYSTONE WASTE MINIMIZATION PROJECT
JANUARY, 1993 PROGRESS REPORT

Dear Sir:

The following is a recap of activities for the past month relative to our Waste Minimization Project:

I. GENERAL

A) There continues to be further formulating and testing of coating samples taking place. Most of this work is taking place with one vendor, as the other candidates have been slow in providing updated formulations.

B) Engineering continues to work on details for converting Wire Mill Cleaning Units #2 and #4 to an alkaline- based cleaning system. Cost estimates have been developed and a Works Authorization Request is being routed for this work.

C) No further investigating into the alternative rotary type coating unit has taken place yet. Primary focus continues to be on converting vapor degreaser detrex units to the water-based coating application.

II. MAJOR STEPS 2 THROUGH 4

Another set of coating trials started on Monday, January 11, 1993, utilizing a modified yellow coating. Tests with both paint and dye were tried during that week. These tests were not successful. The characteristics and appearance were not acceptable. A meeting among Operations, Sales, Quality Assurance and Engineering took place on January 15, at which time Sales identified certain nails which would be acceptable. It was decided, at this time, to get a new paint formulation and proceed with testing the following week.

The tests ran the week of January 18 had considerably better results, but the nails still had marked differences in the shades or hues of the color. At a gathering on January 22 among Operations, Sales , Quality Assurance, and Engineering, it was indicated by Sales that these nails would not be acceptable from an appearance standpoint. It was decided, at this point, to reformulate the yellowish coating to a darker more greenish color in order to provide a more acceptable appearance. Since this would take some time to reformulate, it was also decided to go back to the solvent coating for the next week, and to run new water-based coating tests starting February 1.

We did begin testing of the darker green coating starting February 1. The darker color did help to mask the pronounced shade differences experienced previously, and Sales gave approval to continue with the production. However, there continues to be problems in production in terms of appearance and consistency. We have had much better results with 8's and 12's than with the 16's. We have identified what currently appears to be the cause of this problem; namely, the source of our wire. It appears we have more consistent and superior results with wire which was drawn in the Mid Mill vs. wire which was drawn in the Wire Mill. Apparently, there is some differences in the drawing practices of processing between mills.

We did have the Sales rep and chemist from the cleaner company in on Monday, February 8, to review the application. Per their review, they are going to reformulate their cleaner to make it stronger and more compatible with our equipment. We hope to receive a new trial formulation within a couple weeks. They also recommended we improve our rinse system.

Several changes in the processing were incorporated during the month's trials. A blower venting system of the coater cabinet was installed, a double row steam coil was incorporated in heating and coating (this allowed much improved control of the coating temperature), an additional mild acid rinse was tried in conjunction with the regular rinse, the rinse system was modified to provide heated rinse water, and additional valved outlets were added to the cabinet to provide easy checks of the coating depth. Additionally, we have raised the dryer and provided a chute diverter at the exit end which has contributed to improved efficiency of the operation.

Some of the things we are working on at this point include the following:

1) Fabricate and install larger rinse and rust inhibitor pans. We have known for some time that this is an area where improvements in effectiveness could be realized. We are currently working on details and cost estimates for this work.

2) Rearrange the line to provide the room necessary for #1 above and to provide better fork truck access. We are currently preparing a layout and cost estimate for this work.

3) Awaiting new cleaner formulation per visit by cleaning representatives.

4) Continue to request the current coating supplier to work on addressing existing problems with his coating. Providing we receive some acceptable samples from other coating suppliers, we may want to schedule a trial run utilizing these other coatings.

5) Continue to investigate the sources of 'extra oily and dirty' nails, and means to address this. For example, the practice of cleaning the machines and chutes with petroleum distillate OB2 (kerosene) will not be compatible with water-based cleaning/coating operations. Some actions have been taken at the South Complex to address these concerns, but similar actions will have to be enforced plant wide when we are running entirely with water-based cleaners and coaters.

6) While currently somewhat on the back burner, we will eventually have to get back to looking further at trying to simplify and/or automate the monitoring and controlling of the process by the operator. Currently, the major emphasis is being directed at verifying if this system will do the job or not.

Overall, we seem to have made some minor progress this past month. However, this progress is slower than what we hoped for, and we still have a long way to go in terms of further modifications and trials before we will be comfortable with the results and ease of operation.

Sincerely,

Bob Miller

ROBERT N. MILLER, P.E.
MANAGER OF ENGINEERING

RNM:bmk
2/11/93